1989

REPORT OF THE

BUILDING ADVISORY COMMITTEE

WAYLAND, MASSACHUSETTS

March 1989

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INTRODUCTION

This report of the Building Advisory Committee, a 12-member committee of citizens established to address the needs of the school buildings and the Wayland Town Building, addresses the conditions, renovation costs and financing of two projects. One project is renovating the twelve existing school buildings (estimated 1987 value of $75 million). The other project is the renovation of the Wayland Town Building.

These two projects were studied concurrently for three reasons:

1. All of the buildings share certain structural and subsystem deterioration problems, and the same architect could analyze them together, at a cost saving to the Town.

2. The Wayland School Administration Offices are in the Town Building, and many school programs use the Town Building gymnasium.

3. Asbestos abatement work which is mandated by Environmental Protection Agency regardless of any other construction is a problem in all of these buildings.

However, the committee realized that the two projects are separate issues for the Town of Wayland because the school project is eligible for a 61% State reimbursement while the Town Building is possibly eligible for such reimbursement only for the School Department-related costs.

Accordingly, we have divided the report into 4 Parts: School Buildings, Wayland Town Building, Questions and Answers (concerning both projects), and Appendices (containing tables, graphs, charts, and cost breakdowns).

The Building Advisory Committee is aware of the importance of these projects to the Town of Wayland and its future. We look forward to continuing our work, and to serving the Board of Selectmen, the School Committee, and the citizens of Wayland.

PART I

SCHOOL BUILDINGS

1. Executive Summary

The renovation and upgrading of the Wayland public school buildings is needed to address two pressing needs: 1) to alleviate overcrowding in the elementary schools, and 2) to replace and repair worn out and outmoded building systems. Another need, the Federally mandated treatment of asbestos, is also included in the project's scope.

School-Building Planning. Since the post World War II period, there has been ongoing activity in school building-planning in Wayland. During the past forty years, the schools experienced an enrollment increase calling for expansion of school space, followed by an enrollment decline calling for consolidation of school space. Each step in the school system's growth and expansion (1950's and 1960's), as well as in its recent consolidation (1970's and 1980's), has been accompanied by a concerted effort to involve citizen committees. Each committee utilized appropriate professional advice and consultation to develop plans to construct new schools, to renovate spaces, and to build school additions - and conversely, to close schools, to relinquish property, and to consolidate the school system. Following almost two decades of declining enrollment and the closing of two elementary schools, enrollment is now on the increase. Demographic projections indicate this will continue well into the 1990's.

The current project to renovate and upgrade the school buildings has been guided by a Building Advisory Committee (BAC) made up of citizens with expertise in building design, engineering, construction, property development, finances, and banking, as well as experience in past school building and planning in Wayland. The BAC has worked closely with the architectural firm of Strekalovsky and Hoit to plan the project. Strekalovsky and Hoit has in-depth experience in preparing and implementing over 20 similar school renovation projects in the Commonwealth.

Scope of Work and Phasing. After a year of careful examination of the school buildings' problems, the BAC recommends that the following renovations and repairs take place: mandated asbestos treatment, reroofing, heating plant replacement, new electrical wiring, some classroom remodeling, site work, athletic fields improvement, and window and exterior wall repair. The work will be phased over a two-year period, with construction programmed to begin in late 1989 or early 1990. All renovations are necessary to maintain the schools in operating condition and have been included in the project based on deliberations on the architect's recommendations and the schools' current and future needs.

We emphasize that these renovations are necessary to maintain the schools, which are all sound buildings capable of many more years of service to Wayland.

These renovations *replace* parts of the buildings that are worn out; and *renew* spaces that are not functional. Some work will also be done to meet current school building codes.

Project Cost. We estimate the cost of the project to be $12,806,000, which covers all twelve school buildings (Loker, Happy Hollow, Claypit Hill, Middle School and eight buildings at Wayland High School). After numerous discussions among the staff, the architect, and the BAC, the scope of the project was reduced from a cost of $15,400,000 to the final $12,806,000. Paying $12,806,000 to renovate the school buildings is an investment in Wayland's future, and a safeguard of the Town's largest physical asset, its school buildings (1987 estimated value, $75,000,000). The investment takes the form of $12,806,000 in municipal bonds with a term of 20 years and requires that not more than $1,080,000 can be spent without the assurance of partial (61%) reimbursement from the Commonwealth. Reimbursement would bring the project cost down to $4,994,340.

Financial Information. Wayland must apply for reimbursement through the Massachusetts School Building Assistance Bureau (SBAB). This requires both a commitment from the Town Meeting to proceed with the program and full construction drawings to allow general contractors to bid on the project. These drawings must be paid for - at a cost of $520,000 - before we know whether SBAB funding is granted. This cost is retroactively reimbursed after SBAB approval. Although SBAB approval is not certain, we believe the likelihood is high that we will obtain it. However, to safeguard the appropriated money we are requiring that only money for these construction drawings and three other unavoidable expenses (reopening Loker School, asbestos treatment, and a boiler replacement contingency) can be spent before SBAB approval. We stress that the bulk of the appropriation is to be spent only upon confirmation of the allowed State reimbursement.

Financing a $12,806,000 project, even with 61% reimbursement, will mean a real estate tax increase that will require a Proposition 2 1/2 debt exclusion override. Assuming SBAB participation in the project, and a municipal bond rate of 7%, the tax increase would be under 4% in the first year and would decline gradually over the 20-year life of the bond. Actual real estate tax increases, proportional to a house's assessed value, would be:

House Assessed Value	Tax Increase First Year	Tax Increase Twentieth Year
$100,000	$ 46	$ 21
$200,000	$ 92	$ 42
$300,000	$138	$ 63
$400,000	$184	$ 84
$500,000	$230	$105
$600,000	$276	$126
$700,000	$322	$147

Conclusion After a year of studying the buildings and working closely with the architect and school officials, the BAC has reached the following conclusion: the implementation and completion of the building renovations as outlined above (and detailed in the report) is essential to preserve the integrity of the school buildings and insure that they will be in good working order for the next 20 to 30 years.

2. Statement of the Problem

Wayland enjoys a reputation for fine schools. Wayland's citizens know the reputation is founded on a strong, well-rounded academic program, an outstanding staff, eager students, interested parents -- and sufficient tax revenue. However, Wayland taxpayers now face a new challenge: the school buildings need major renovations. As buildings, the schools are essentially in "mid-life," but their systems (roofs, boilers, furniture, ventilators, etc.) are in "old-age." We must perform these renovations to maintain the schools in operating condition. In addition, Wayland must respond to another challenge: increasing enrollment that requires reopening a third elementary school (Loker). These challenges require a major capital expenditure ($12,806,000) as an investment for the future, an investment in Wayland's largest capital asset, its school buildings, an investment that is necessary and one that will keep the schools functioning into the 21st century. This is sound management of our resources and a good investment in the future.

Why is a major renovation project necessary? First, the schools need renovation because equipment and building systems are worn out. Continued maintenance on broken and obsolete systems is impossible. Replacement with modern efficient systems is the solution in most cases, and this should be done as a multi-phase, orchestrated project, not piecemeal. Second, overcrowding in the elementary schools has already forced compromises in the academic program. For example, no music teaching station exists at Happy Hollow. No well-equipped space exists for computers at either elementary school. The number of kindergartens is increasing, leading to increased enrollment in the upper grades. Enrollment will continue to rise, forcing the planned reopening of Loker School. Renovation can be conveniently overlapped with the reopening of Loker. Third, the elementary schools were built with open classrooms, an innovation that has proved unsuccessful. These classrooms need to be enclosed. Fourth, numerous communities in Massachusetts are in similar situations, having to renovate schools built in the 1950's and 1960's (to accommodate increased enrollment). State aid, which is necessary for this project, will be needed by more and more towns. Acting now will improve our chances of prompt, partial reimbursement from the state (61% under current guidelines). However, we must show our willingness to prepare for the renovations by approving allocation of funds through a bond issue. Fifth, we are bordering on a crisis. We must act now to safeguard Wayland's assets.

Wayland's reputation for fine schools should be maintained. Wayland, as a community, attracts people who believe that good education is a necessity. The result is evident in academic attainment, as well as in extra-curricular achievements, and state and national recognition. There are additional tangible results. Property values are among the highest in the state. Real estate agents remark that one of the main reasons for our strong relative standing is the quality of the school system. Of all the reasons why home buyers come to Wayland, the fine schools are most frequently mentioned. For the benefit of our children and our community we must retain this high quality. Maintaining the educational facilities is as much a part of the quality of the school system as maintaining a strong academic program. Given

the age of our schools and the increasing school population, we must embark on the proposed renovation program.

3. School Building Planning in Wayland

Wayland citizens have devoted a substantial amount of time and effort to educational planning, at least during the Town's recent history. During the post-World War II period of rapid expansion of the Town and its pupil population, School Committees developed a number of school plans. This was accomplished with substantial assistance from many citizens serving on several different planning and building committees. For this planning, several consulting firms were contracted to conduct studies and to develop plans for review by both the citizens' committees and school committees.

As a result, during the 1940s and 1950s, additions were constructed to the Junior/Senior High School (now the Town Building) and to Cochituate Elementary School (now the Schoolhouse Housing Project) and renovations were made to the former Center School (razed in 1978). During the 1950s and 1960s, Happy Hollow School, Claypit Hill School, Loker School (now rented to various groups for non-school purposes), and the High School were constructed.

In the late 1960s, another major planning effort developed around a proposed new Middle School. For the first time in many years, a school building-planning effort was defeated by Town Meeting. The Town then established a new citizens' committee, the School Building Planning Committee, that worked during the early 1970s on implementing an alternative plan to the defeated Middle School concept. As a result, a major addition was made to the Claypit Hill School, a brand new Junior High School (now the Middle School) was built in Cochituate, the Media Center and other modifications were added to the High School campus, and a major addition and extensive remodeling were done on the Happy Hollow School.

3.1 Enrollment Decline and Building Needs

As school enrollment started to decline in the mid to late 1970s, citizens' committees on long range planning assisted in the planning and implementation of the closing of both Cochituate and Loker schools. Additional citizens' committee efforts in assessing future demographic trends and outlining program planning principles for the High School culminated in the acceptance by the School Committee of a Long Range Planning Report in September of 1981. After reviewing this final report, the School Committee instructed the School Administration to develop, by June of 1983, a five-year plan for school operations.

The 1983 Five Year Plan presented a demographic, programmatic, financial, and building needs profile of the school system. By the mid-1980s, after several yearly updates, the Five Year Plan introduced the concept of a major school building facilities project to replace and upgrade aging building components (roofs, boilers, lockers, flooring, equipment, etc.). At that time, the School Committee directed the

School Administration to develop a timetable and a procedure to establish a new citizens' School Building Planning Committee.

It took over a year of further detailed building surveys, building inventories, staff input sessions, and some preliminary architectural consultant work, before a complete and updated school building facilities report was finally presented to the School Committee in order to appoint a citizens' committee. This December 1987 Report outlined for the School Committee and the Town, the current and projected status of demographics, space utilization needs, curriculum/program needs, building subsystems, and recommendations. It was accepted by the School Committee and the citizens' BAC was appointed in the Winter of 1988 to assist and guide the School Committee in the realization of this important project.

3.2 Planning for Enrollment Increases

By the 1987-88 school year, it was clear that the buildings needed significant renovation, rehabilitation and upgrading to serve the needs of the Town's school children well into the next century. Also, a new demographic trend was clear: elementary school enrollment was increasing and would continue to increase. The two operating elementary schools, already functioning over capacity, did not have the capacity to house the increasing enrollment. Space would have to be found to resolve this problem as well.

During the 1987-88 school year, the School Committee reviewed this problem. In July 1988, they voted to reopen the closed Loker School as a third elementary school in the Fall of 1990, to accommodate the growing elementary population. In the Fall of 1988, the Committee further specified that the Loker School would house grades K-4 in its first year of operation, and from September 1991 be a K-5 school.

3.3 Building Advisory Committee

As previously mentioned in section 3.1, in the Winter of 1988, a citizens' BAC was appointed by the School Committee to assist it with planning and overseeing the renovation and upgrading of the school buildings.

The BAC was specifically composed of citizens with professional expertise in areas relating to facilities upgrading. Its members are: Co-chairmen Michael Marion, a mechanical engineer; and Warren Daniel, an architect; Arnold Bennett, a banker; Robert Mainer, a financial executive and past chairman of the school's Long Range Planning Committee (1979) and prior School Building Planning Committees; Ronald DeMartini, a building contractor; Fred Knight, a physicist; Charles Bowers, the retired Director of Athletics and Physical Education and member of the Town Building Renovation Committee (1975); Lawrence Feinberg, in real estate development and manufacturing; and Barbara Winer, a psychiatric counselor. *Ex officio* members are Dr. William G. Zimmerman, Jr., Superintendent of Schools; Gary Osmond, School Business Administrator; and Linda Greyser, a member of the School Committee.

Since March of 1988, the BAC has met regularly, and worked with all aspects

of planning and implementing the facilities upgrading project. As one of its first orders of business, the BAC advertised in the Central Register for an architect. After reviewing 14 submissions of Designer Selection Board applications and interviewing six architectural firms, Strekalovsky and Hoit, Inc., of Hingham, Massachusetts, was selected. The BAC has spent a considerable amount of time inspecting the schools and working with the architect to define the project. The School Committee has been continually appraised of the work of the BAC during the past year. All major decisions concerning the project have been made by the School Committee after receiving input and recommendations by the BAC.

4. Scope of Work

The following section describes building systems and the recommendations for their replacement and repair. The description is organized by systems as defined by the architect's categories and then by school. Costs are detailed in Appendix A by the same categories for each school. Only summary costs are used in the text.

4.1 Heating, Ventilating and Climate Control: $2,310,000

4.1.1 Boilers It is the consensus of the BAC that the most critical issue in the overall renovation program is the replacement of the existing boilers in our schools. No single failure of a building component can close a school like the lack of heat in winter.

The primary heat source in all the school buildings is steam. The heating system is similar in all the buildings. A boiler generates steam and delivers that steam through a piping network to the heating units located throughout the school. The boilers are well past their designed life expectancy. Severe corrosion of the furnace parts, thermal fatigue of burner components and a total lack of available spare parts have classified these boilers as completely unreliable. The State boiler inspectors have expressed serious concern about their future certification.

As recommended by the architect and his consulting engineer, we propose that these steam boilers be replaced with new circulating hot water systems similar to residential baseboard heating. The advantages to such a system are several. First, hot water boilers are much more efficient than their steam counterparts because they use a temperature-compensated control system to regulate the burner operation. Second, hot water boilers are much smaller and easier to maintain than the old steam boilers. Third, the existing steam boilers have modulating steam control valves, complex condensate return systems and steam traps which require constant maintenance. (On any given winter day, evidence of the unnecessary heat loss can be witnessed by the steam plumes escaping from the roof vents.)

Boilers at Claypit Hill, Loker, and the High School will be replaced. The steam boiler in Happy Hollow is in good condition and will be retrofitted to a circulating hot water system. The two boilers in the Middle School are presently the hot water type.

These boilers are in fair condition and should be overhauled, but the four hot water circulating pumps should be replaced. Insulating asbestos must be removed before replacement.

4.1.2. Heat Distribution, Ventilation and Climate Control

Elementary Schools All three elementary schools need new pipe distribution systems, classroom unit ventilators, automatic thermostats, new roof top air handling units to provide proper heat and ventilation in the corridors (building code requirement) and interior spaces, and exhaust fans in the classrooms and toilet rooms.

The Claypit oil tank is new. Loker and Happy Hollow need new oil tanks.

Middle School

* Refurbish the two hot water boilers.
* Provide a compensated hot water reset control system.
* Ceiling mounted unit ventilators which provide heating, ventilating, and air conditioning, should be refurbished where practical or replaced.
* Repair roof top air handling units that serve the gym and locker rooms.
* Replace roof top air handling units that serve the classrooms.
* Provide roof top air handling units to ventilate school corridors (building code requirement).
* Provide more temperature control zones and an energy management system.
* Replace toilet and classroom exhaust fans.
* Provide a recirculated air dust collector/filter for the woodworking shop.

High School

* Provide a new hot water boiler in building A to serve buildings A, B, C, D, E, and G.
* Provide new piping distribution system to these buildings.
* Provide a new hot water boiler for the Field House (building F).
* Provide new ducting systems for heating, ventilating and exhaust of locker rooms, toilets, and offices in the Field House.
* Provide new hot water space heaters for the Field House in general.
* Replace the two existing roof top air conditioning units on building H.
* Provide new unit ventilators to the classrooms throughout the campus.
* Provide ventilation and exhaust capabilities in classrooms and toilet rooms where required.
* Remove asbestos that insulates the boilers and ancillary equipment.
* Provide a new automatic temperature control system.

4.2 Roofs: $1,367,000

The existing roofs are all, with the exception of the High School Field House, of flat roof and pitched clerestory monitor design. They are constructed of built up

tar and gravel roofing over a variety of structural support systems. Roofs have been patched and areas replaced due to deterioration from age.

The architect has recommended roof replacement with new rubber membrane roofing which lays loosely over rigid insulation laid on the existing roof deck. Rubber membrane roofs are the current state of the art for flat roofs. Most new roofs use this system and have had excellent results. A layer of stone ballast is put on the rubber membrane to protect it against ultraviolet deterioration. The addition of rigid-type insulation greatly increases the "R" value of the roof assembly, making it more energy efficient.

All of the existing flashing will be replaced and new HVAC equipment mounting pads will be constructed and flashed. The quality of the flashing work is of paramount importance to the durability of the roof. The roofing manufacturer will inspect the job and give the school a 20-year warranty.

4.3 Electrical System: $1,086,000

Proper electrical equipment is required for school safety, operation, and code compliance. In addition, existing incandescent lights will be converted to either fluorescent, metal halide, or high pressure sodium lights. Converting to these types of lamps will vastly improve the overall school lighting systems in the following areas:

* The quality of light will be better.
* Significant savings in labor cost for relamping (lamp life for fluorescents, metal halide and high pressure sodium exceed incandescent bulbs by factors from 6 to 1 to 12 to 1).
* These lighting systems are more efficient so that fewer fixtures are required to attain the same level of light with incandescents.

Listed below are the BAC's recommendations on electrical upgrades.

Loker School and Claypit Hill School

* Upgrade the fire alarm system to meet current code requirements.
* Replace emergency lighting system batteries.
* Repair exit lighting.
* Replace the clock and bell system.
* Replace incandescent exterior lighting with high pressure sodium floodlights for security and public safety.
* Replace the intercom system.
* Replace recessed incandescent lighting with fluorescent fixtures.
* Provide motion detection and alarms for school security.
* Provide additional receptacles.

Happy Hollow School

* Replace emergency lighting system batteries.
* Repair, where required, the clock/bell system.
* Replace the existing intercom system in its entirety.
* Replace incandescent recessed lighting with fluorescent fixtures.
* Replace exterior incandescent lighting with high pressure sodium floodlights for security and public safety.
* Provide motion detection and alarms for school security.
* Provide additional receptacles.

Middle School

* Upgrade the fire alarm system to meet current code.
* Refurbish the emergency power generator.
* Replace incandescent lighting in the corridors with fluorescent fixtures.
* Increase level of exterior lighting for security and public safety.
* Provide a motion detection system for school security.
* Provide additional receptacles.

High School

* Increase receptacles in buildings A, B, C, D, E, and F.
* Repair exterior lighting in the covered walkways of building C.

4.4 Plumbing System: $541,000 (Plumbing) + $20,000 (Sprinkler) = $561,000

The existing steam heated domestic hot water systems will be replaced with new hot water units which will provide better temperature control and, therefore, be more efficient to operate. Many of the existing valves, fixtures, and hardware have deteriorated beyond repair and require replacement.

Loker School and Claypit Hill School

* Replace existing steam-heated domestic hot water unit with a gas-fired hot water heater and storage tank.
* Repair, replace or install miscellaneous valves, pumps, trim and backflow preventers.
* Replace, as necessary, the trim on sinks, lavatories, urinals and water closets.
* Toilet rooms should be revised to meet Architectural Access Board requirements.

Claypit Hill School

* Install handicapped electric water coolers near toilet rooms.
* The toilet/shower room should be redesigned for toilet only and per the recommendation of the Architectural Access Board.

Happy Hollow School

* Replace existing steam-heated domestic hot water unit with a gas-fired hot water heater and storage tank.

* Repair, replace or install miscellaneous valves, pumps, trim and backflow preventers.
* Replace, as necessary, the trim on sinks, lavatories, urinals and water closets.
* Toilet rooms should be revised to meet Architectural Access Board requirements.
* Install a 140 degree hot water line to the kitchen serving area complete with thermostatic mixing valve.

Middle School

* Replace existing steam-heated domestic hot water units with a gas-fired hot water heater and storage tanks.
* Replace boiler room sump pumps and emergency generator cooling water pump.
* Install a pressure reducing valve at the water meter to meet code requirements.
* Repair electric water coolers and make them handicapped accessible.
* Replace, as necessary, the trim on lavatories, showers, sinks, urinals and water closets.
* Toilet rooms should be revised to meet the requirements of the Architectural Access Board.
* Install a fire suppression system in the kitchen exhaust hood.
* Install a 140 degree mixing valve at the hot water storage tanks.
* Replace the hot water recirculating pump.

High School

* Replace the existing steam-heated hot water system with a gas-fired hot water system in building A. Provide a 140 degree hot water line to the Commons building with appropriate control valving for safety.
* Replace all ancillary pumps associated with this domestic hot water system.
* Install an additional sump pump in the mechanical room to accommodate the ground water problem.
* Install the required mixing valves, backflow preventers, and vacuum breakers that are required by the State Plumbing Code.
* Install sprinkler heads on the stage of the Little Theater.
* All the toilet rooms in the eight buildings need to be revised to conform to the standards of the Architectural Access Board.
* Remove all asbestos insulation that is encountered during the replacement or refurbishing of plumbing equipment.
* Install acid neutralizing tanks in the waste drains of the Science labs (State plumbing code).
* Replace the steam-heated domestic hot water system in building F (Field House) with a gas-fired hot water system and storage tank.
* Replace the sewer ejector pumps, sump pumps, and recirculating hot water pump in building F.
* Replace the steam-heated domestic hot water system in building H with a gas-fired hot water system and storage tank.

4.5 Sitework: $804,000

New sitework focuses on basic use and safety issues. The main scope of work is paving and athletic areas.

* New paving and pavement patching of parking lots and access roads. Areas of high traffic will receive a new binder coarse and finish coarse while areas of less use will receive a new finish coarse only.
* Middle School field to be regraded for subsurface drainage, loam and seeding.
* High School tennis courts to be rebuilt.
* Replace fencing around tennis courts.
* Provide for a new all weather outdoor track and drainage.
* Replace existing deteriorated bleachers.
* Additional parking spaces at Claypit Hill.
* Provide new paved area at Happy Hollow in lieu of existing unmaintainable dirt play area.
* Repair and replace existing walk paving at all the schools.

4.6 Concrete and Masonry: $453,000

The schools are predominantly constructed of concrete block and brick facing. Stucco facing is used at the Middle School and High School Media Center. The face brick is generally in good condition. However, the buildings need repointing of the mortar to stop water penetration. Water penetration into a cavity wall and the repetitive freeze/thaw cycles has caused some of the masonry walls to be out of plumb.

Similarly, the bad areas of cement stucco will be removed back to solid material and replaced with new stucco. The entire stucco finish will be coated with a tinted sealer to create an impervious finish. The masonry scope of work also includes:

* Waterproof the brick.
* Repair masonry in chimneys.
* Install concrete block walls to enclose the open classroom areas in Claypit Hill, Happy Hollow and the Middle School.
* Provide all necessary cutting and patching.
* Repair concrete structural deficiencies.
* Provide handicapped ramps.

4.7 Windows, Doors and Carpentry: $717,000

The existing windows are largely of single pane with steel frame construction and run continuously horizontally on most outside walls. In some cases, the frame has become detached from the opening. The heat loss is substantial from these windows. A similar problem exists with the exterior doors. Door weather stripping

is non-existent, door alignments and hardware are no longer workable. For the purpose of minimizing heat loss and securing the school buildings after hours, we propose the following:

* Reduce existing glass area at window walls by installation of insulated panels.
* Reglaze existing panes repaired with lexan and plexiglass panels with glass.
* Repair and replace window panes that have detached from masonry openings.
* Repair window hardware.
* Install new insulated fiberglass exterior doors.
* Provide new overhead insulated doors at Happy Hollow, Claypit Hill, and High School Field House.

4.8 Finishes: $1,459,000

Interior finishes include ceiling treatment, flooring, painting and miscellaneous repairs.

* Paint exterior wood, exposed steel, metal doors and frames and exterior of the Media Center.
* Much of the existing acoustic ceiling tile which is stained and damaged by water and humidity will be replaced by new tectum ceiling tile, which is impervious and unaffected by water damage.
* Most of the existing ceiling tile and track must be removed to accommodate the new heating and electrical insulation.
* All existing and new walls, doors, and windows, as well as new block partitions, will receive new paint, with corridor spaces getting a glaze coating.
* Most of the floor areas in the elementary schools will be carpeted over the existing vinyl asbestos tile. This accomplishes several objectives, including obviating the need to remove the existing vinyl asbestos tile, providing a much quieter environment, and reducing maintenance costs.
* The elementary schools will receive carpet in all the corridors and classrooms.
* New vinyl composition tile will be installed in special use spaces (art, lunch rooms, teacher's lunch room and exterior entry areas.
* The Middle School gymnasium will receive a new special sheet flooring.
* The High School will receive new vinyl composition tile in most areas.
* The High School will receive new carpeting in special use spaces.

4.9 Built-In Equipment: $299,000 (Specialties)

Built-In Equipment consists of fixed lockers, lab equipment, chalk boards and tack boards.

* Repair or replace toilet partitions.
* Repair or replace existing lockers in the Middle School, High School and High School Field House.
* Install new chalk boards throughout the schools.

4.10 General Conditions and Supervision: $614,000

An integral part of the overall construction cost is the portion associated with managing the entire project. The terminology for this service is called general conditions and supervision. General conditions include all costs associated with running a field office, e.g. trailor, utilities, portable sanitation, postage, security, etc. Supervision includes the labor costs of the contractor who will be responsible for the total project. As a minimum, the project would be staffed with a project manager, assistant project manager, construction superintendent, a field engineer/assistant superintendent, and field clerical help.

4.11 Overhead and Profit: $663,000

Overhead as it relates to a construction management organization includes all home office support that is not directly billable to current projects. These functions include corporate overview, legal (for contracts), accounting, payroll, and secretarial. Profit is self-explanatory.

It may be worthy of note that overhead and profit constitute about 5% of the total construction cost.

5. Phasing

As has been mentioned previously, the renovations project will not proceed without the approval of partial reimbursement from the SBAB. In order to obtain this approval Wayland must obtain funding from the Town Meeting, spend money ($520,000) to have full construction drawings prepared, advertise the project, obtain bids from general contractors, and submit a package to the SBAB. All of this needs to take place before SBAB will consider the project for 61% reimbursement. Given the present climate at the State House, the SBAB approval is uncertain, simply due to the lack of sufficient funds, not Wayland's status or the state of the school buildings. However, the time to act is now. There are many communities in our situation, but few are at the stage of submitting packages to SBAB. It is important to prepare for submission as soon as possible. By late Fall we hope to have approval and to be able to begin construction.

With the architect's approval, we recommend that the renovation project occur in two phases, which will last two years. Phase one will prepare Loker school for its Fall, 1990 opening, replace the roofing, roof insulation, and flashing on all twelve school buildings, completely replace the designated boilers, ancillary equipment, and distribution systems. This work will begin in late Spring and be completed before the beginning of the 1990 heating season. By separating the roofing, boiler, and

HVAC portions from the other renovations, we hope to save a significant amount of overhead cost. We can eliminate the construction management fees because the roofing and mechanical contracts can be let without a general contractor involved. Phase two would start at the completion of phase one --- in the winter of 1990-1991. Phase two consists of the remaining renovations, mainly interior work. The architect is confident that renovations can be accomplished with minimal disruption to the educational process. Because many trades are needed for this work (e.g. electricians, plumbers, carpenters, painters, glazing trades, and paving contractors), a construction manager is required to coordinate the work, to minimize the impact on school activities, and to assure a safe construction environment.

6. Project Cost

Section 4 describes the proposed renovations; here (and in Appendix A) we outline the estimated cost using the architect's figures. These costs are estimates based on the architect's and engineer's preliminary plans, not full construction documents that need to be drawn after the bond issue passes. They are good estimates of the renovation cost based on a thorough analysis of the system needs of the buildings and the educational needs of the school system. The project cost is divided into seven categories shown in the table below and Appendix A.

1.	Construction cost	$10,333,000	81.0 %
2.	Asbestos treatment	1,000,000	7.8
3.	Fees	690,000	5.4
4.	Furnishings	300,000	2.3
5.	Clerk of the Works	65,000	0.5
6.	Expenses	18,000	0.1
7.	Contingency	400,000	3.1
	Project cost	$12,806,000	100.0 %

Construction cost is the cost of performing the renovations described in section 4 and may be divided two ways: by construction divisions and by school. These are clearly illustrated in Appendices C and D. Asbestos treatment, mandated by the Federal Government, is an estimate from a study contracted by the school department. Fees pay for construction drawings needed for bidding by general contractors and for application to the SBAB. Furnishings are needed to replace worn out classroom furniture and refurnish Loker, whose furniture has been used as replacements at other schools. The Clerk of the Works oversees and coordinates work as the representative of the Wayland Public Schools during construction. Expenses are filing fees for State and local permits. Contingency is an estimate to cover unforseen construction costs. The project cost covers the entire program, but no adjustments have been included for the savings of eliminating the general contractor for phase one (roofs and HVAC).

We emphasize that the project cost is an estimate, developed by the architect in conjunction with us and the school administration. We are confident that the

plans address accurately the necessary renovations to the schools. The architectural firm, Strekalovsky & Hoit, has in depth experience on preparing and implementing similar assignments throughout the Commonwealth of Massachusetts. Their excellent "track record" on estimating the cost of construction on school renovation projects is one of the reasons why they were our unanimous choice.

7. Financial Information

The cost of the renovations precludes funding them in the regular Town budget. Instead, the renovations must be funded through a bond issue, requiring an override of Proposition 2 1/2. The maximum term for a municipal building project without State aid is ten years, and under current interest rates this would put an impossible burden on taxpayers. In order to minimize the tax increase due to the bond, we are requiring that we be approved for State aid, which comes as partial (61%) reimbursement from the School Building Assistance Bureau (SBAB), before the majority of the renovations begin. However, this approval can come only after we have satisfied the SBAB filing requirements, which require up-front money. In brief, we need the partial State reimbursement to keep the tax increase low, but we will also have to spend money before we can file for the reimbursement. Now some details.

To pay for the renovation project, Wayland must issue $12,806,000 in municipal bonds. Municipal bonds are structured such that a fraction of the total issue matures (becomes eligible for redemption) each year. Thus, for a 20-year issue, one twentieth of the bonds are redeemable at the end of year one, one twentieth at the end of year two, etc. A different interest rate attaches to each maturity year with the near term maturities offered at a lower rate than the longer terms. With SBAB reimbursement, the term can be 20 years. These bonds can be issued as they are needed. Initially we need money to file for SBAB reimbursement --- $520,000 to prepare full construction documents to obtain general contractor bids, which SBAB requires. Although there is no certainty of SBAB approval, we believe the chances are good that we will obtain it. However, to safeguard the appropriated money, we are requiring that only money for these construction drawings and three other unavoidable expenses (opening Loker School, asbestos treatment, and a boiler replacement contingency) be spent before SBAB approval. We need to fund the construction drawings ($520,000), reopening Loker ($300,000, includes $30,000 for furnishings and $10,000 contingency), federally-mandated asbestos treatment ($160,000), and a contingency for emergency boiler repair ($100,000): a total of $1,080,000. Supposing the SBAB approves our project, these up-front costs will also be reimbursed at the 61% rate. In summary, we need to spend some money (up to $1,080,000) before we know whether we will obtain State aid, but if aid is approved, 61% of the entire project will be reimbursed.

These municipal bonds will be paid by real estate taxes. Exactly how much the tax rate needs to increase will depend on: (1) when the project money is needed (we estimate 1990-1991); (2) the interest rate (we estimate 7%); and (3) whether we get SBAB funding (we believe we will). We consider two scenarios

here. The first assumes SBAB reimbursement is approved promptly (by fall of 1989). Then the entire project will proceed in two phases, and Wayland will have to borrow $12,806,000. The tax increase will be between 3.5% and 4%, and less over the next 20 years as the bond is paid off. An amortization schedule appears in Appendix E assuming 7% interest. The second assumes SBAB does not have funds to reimburse us. Then the bulk of the project will await further action at next year's Town Meeting, but up to $1,080,000 will be spent on the items listed in the previous paragraph. In this scenario, the tax increase will be about 1% and further increases will be needed for renovations afterward, depending on the action at next year's Town Meeting. We prefer the first scenario and think it is likely that SBAB will have funds and approve our project. In summary, the entire project, with State aid, will produce a 3.5% to 4% tax increase in the first of the twenty years needed to repay the bond. Then payments will decline over the remaining twenty years. Without State aid, we can proceed with only a small part of the project and must request the remainder next year. The average home assessment is about $282,000. The graph in Appendix H presents the tax increase in relation to the current tax.

Other costs associated with the bond issue, generally for bond counsel and bank administration fees, typically range between $25,000 and $30,000. We do not need to add these costs to the project as they will be included in the Town's operating budget.

Regarding the offering prospectus and the bond issue, the Town's relationship bank, currently State Street, would do the following:

1. Request bond counsel to prepare an opinion that the issue complies with all statutory and regulatory requirements.

2. Certify that the issue will be tax exempt to purchasers.

3. Advertise the offering and circulate the prospectus to likely purchasers.

4. Receive sale proceeds, remit them to the Town, and administer the annual redemptions.

Following Town Meeting authorization, the following steps are taken:

1. Contract documents are prepared by the architect.
2. The project is advertised in the central register and bids are received.
3. Plans and bids are submitted to SBAB for approval.
4. Town requests approval of the State's Emergency Finance Board.
5. Bank is officially selected and works with Finance Committee to determine timing of the issue.

8. Conclusions and Recommendations

The BAC has studied the school renovation project for one year, and has toured the school buildings on several occasions with other Town officials and with the architect. Additionally, we have reviewed the Wayland School Committee's school enrollment demographic studies, which show a continuing increase in the elementary grade enrollment. Further, we have analyzed and discussed with the school principals their programmatic concerns - those physical conditions which dramatically affect the educational process.

We conclude from our work to date, that the existing conditions of the school buildings are due to their ages, and the ages of their infrastructure (boilers, roofs, electricity, plumbing, flooring) which all have exceeded their useful life expectancy. The building structures are in good condition and will last many more years with proper care.

The current condition of the building systems is not a result of mandated funding cuts resulting from Proposition 2 1/2 in 1978, but simply the age of these systems. The 2 1/2 cuts have affected furnishings and equipment (carpet, shades, lighting fixtures, lockers, chemistry tables, etc.), but have not in any way shortened the expected lives of the major systems.

The BAC, based on the above conclusions, recommends to the School Committee the following:

1. Accept the preliminary plans submitted by Strekalovsky & Hoit.
2. Reopen Loker School for the 1990 school year.
3. Request the Wayland Board of Selectmen to allow this project to come before the Town for a debt exclusion override vote.
4. Perform the construction renovations in 2 phases over a two-year period.
5. Of the $12,806,000, use up to $1,080,000 as previously described in section 7, with or without SBAB approval.

PART II

WAYLAND TOWN BUILDING

1. Executive Summary

Problems in the Town Building. With the consent of the Board of Selectmen, the BAC and the architect have considered several problems with the Wayland Town Building. Although renovated over a decade ago, and since then used for school and Town offices, the building has four serious problems. 1) A major concern is the water drainage and crawl space ventilation under the "East Wing" (Senior Citizens/Town Offices section), causing the floor to rot and a musty smell. This section of the building also has a termite problem which is currently being addressed. Other issues are: 2) HVAC and roof repairs (flat roofs); 3) deficiencies in space utilization in Town government offices section (tax collector, assessor, park and recreation, executive secretary, Town accountant); and 4) Federally mandated asbestos treatment.

Scope of Work. To resolve the Town Building's problems, the BAC recommends that the necessary repairs to the drainage system be made, and that appropriate ventilation devices be installed under the East Wing. We also advise that necessary repairs be done to the heating system and roof. Rearranging working space in the Town government office section is necessary, in the form of partitions to ensure more privacy and better working conditions. Asbestos treatment is mandatory in the Town Building and must commence by this July (1989) under Federal regulations.

Cost of Project/Financial Information. The BAC looked at these and other building needs of the Town Building, but narrowed the scope (and the cost) of the project to just these four. The cost for repair and renovation of the Town Building is estimated at $992,000. This expenditure, which includes $200,000 for asbestos treatment, would have to be done, under present requirements, on a l0-year bond, without State reimbursement. The impact on the tax rate would be an increase of 13 cents (1.1%) in the first year, diminishing to 8 cents (0.7%) in the tenth year.

Conclusion. The BAC recommends that the renovations to the Wayland Town Building be undertaken in conjunction with the renovation of the school buildings.

2. Statement of the Problem

There are three major areas of work that need to be addressed in the Wayland Town Building.

1. **Municipal Government Staff Offices** -- The municipal government offices need to be closed in. The present "open space" concept is very disruptive to the work-flow, very inefficient, and offers no privacy for citizens to discuss (in person or on the phone) issues or concerns requiring confidentiality. Moreover, the offices are too cramped and need more space. This can be provided within the building. The school offices are sufficient and satisfactory and no work need be done there.

2. **Heating Plant and HVAC** -- The boilers are in good condition. However, both oil burners should be replaced with more reliable, more energy-efficient burners. A small heating unit should be installed in the gym so it can be heated on the weekends and at night without having to heat the entire building.

3. **Asbestos** -- Treatment of friable asbestos in the stage area of the gym plus asbestos treatment in the boiler room and on the heating pipes in the crawl spaces.

4. **Roofs** -- Replacement of the flat roofs.

5. **Special Problems** -- Remediation of ground water problem underneath the East Wing which is rotting the floors and main building joists. This is a major undertaking, but one of the most pressing structural threats to any of the Town's buildings. Also, the paving needs to be replaced in some areas and simply sealed and top-coated in other areas.

3. Historical Background

The Wayland Town Building was originally constructed in the 1930's as a depression-era Works Project Administration project and was opened as the High School in 1935. Later, it became the Junior-Senior High School with a new addition (the so-called East Wing) in 1948/49. In 1959/60, when the current High School was occupied, the building housed only the 7th and 8th grades (Junior High).

In 1972, with the construction of the new Junior High (now called "Wayland Middle School") in Cochituate Village, the building was closed. It was kept in minimal operation for several years, housing the Kindergarten classes and the offices for the Minuteman Regional Vocational-Technical High School, and other similar offices until 1978, when the reconstruction was complete and it reopened as the Wayland Town Building, housing both school and municipal offices. This enabled Police and Fire Departments to expand and assume all of the space in

what is now known as the Public Safety Building. It also enabled the Town to raze the old Center School (used as an Annex to the Junior High and for school administrative offices) and convert the area to what is now known as Anderson Park.

The land that the Town Building occupies, originally marsh land, is "filled land". The water table is inches below the ground. Therefore, there is water nearly all year in the utility crawl spaces underneath the building. In high water times, the water from the Sudbury River overflows, floods the entire parking lot, and rises right up to the southeast corner of the building itself. Some means must be found to keep air circulating underneath the building and the water evaporated from the crawl spaces.

4. Scope of Work

The scope of work outlined in this section addresses the four major problem areas in the Wayland Town Building.

4.1 Heating

The Town Building is heated by two steam boilers. Although these boilers do not require replacement, retrofitting them with modern burners and controls will make them more efficient. A smaller third boiler will handle the gymnasium area. This will eliminate the heating of the entire building when only the gymnasium is in use. Condensate pumps, numerous steam traps and some piping also need to be replaced or repaired.

4.2 Water Problems

The pitched roofs on the main sections of the building are in good condition. The sections of flat roofs, however, need to be replaced with modern rubber membrane roofing. The moisture in the crawl space will be corrected by grading, rejuvenating old dry wells and installing more louvers and power ventilators. Areas already damaged by moisture (Senior Citizen Center floor, bathroom ceilings) will be repaired.

4.3 Asbestos

Asbestos insulation is found on pipes and duct work in crawl spaces and attic areas. This will be removed and replaced with the appropriate fiberglass insulation.

4.4 Town Office Space

Private offices will be created for Town Department Heads and the Executive Secretary. The paper storage area on the second floor, next to the Computer Room would be used as a Town Department (to be determined), thus alleviating the overcrowding in the current Town Offices. The reallocation of space and the

creation of separate offices will require new partitions, doors, electrical, lighting and finishes.

5. Project Cost

The architects estimate for the scope of work outlined in section 4 is $992,000. Construction costs are $665,000 and the cost of asbestos treatment is $200,000. The remaining $127,000 consists of fees, expenses, furnishings, clerk of works and contingency. The complete breakdown of these costs is shown in Appendix A. Appendix B shows the details of the $665,000 construction costs.

6. Financial Information

The $992,000 expenditure to renovate and repair the Town Building would need to be financed with a 10-year bond with no State reimbursement. By law, the Town cannot issue bonds with more than a ten year term without State reimbursement. Assuming a 7% interest rate on the bond, this would result in a 13 cent, or 1.1% increase in the tax rate in the first year. On the average house in Wayland (the average assessed value is $282,000), the first year tax increase resulting from the renovation of the Town Building would be $37. Furthermore, the tax increase over the current rate would continue to decrease over the ten-year period to $22 in the tenth year (See Appendix I).

There is a possibility that some portion of the Town Building renovations would qualify for SBAB approval because the school offices are housed in the building and the gymnasium is used for school purposes. Although the BAC will continue to pursue this issue, we must assume a 10-year bond at this time.

Concerning the bond issue and related documents, please refer to Part I, section 7, Financial Information, as the scenario is exactly the same.

7. Conclusions and Recommendations

Although the Town Building was renovated in 1976 and significant improvements were made (double glazed windows, for example), there remain some significant problems that need to be taken care of. It seems prudent to address these needs in conjunction with the school renovation project. Although these two projects must be considered as separate questions under the Warrant Articles at Town Meeting (due to financing and State reimbursement guidelines), it makes sense to consolidate the jobs under one architect and an existing building committee.

The BAC recommends the repairs and renovations outlined in section 4 be completed. We also recommend that there be more discussion, when the new Executive Secretary arrives, on the allocation of space within the Town Offices.

PART III

QUESTIONS AND ANSWERS

Schools and Town Building

1. Q. **What is being proposed?**
   A. A major upgrading/renovation project to rehabilitate aging school buildings and the Town Building.

2. Q. **Why is this necessary?**
   A. The buildings are the major physical assets of the Town. Most of these buildings are approaching mid-life and are 30 or more years old. There is a need to replace worn-out and obsolete boilers and mechanical systems, roofs, floor and ceiling tiles, furniture and equipment that have exceeded their normal life expectancy.

3. Q. **Were the buildings properly maintained?**
   A. Yes, for the most part. We have had maintenance workers on staff and maintenance companies under contract. The fact remains that after 35 years of continued use, boilers simply need to be replaced. Roofs bonded for 15 or 20 years that are now over 30 years likewise need replacement. Mechanical, structural, and equipment systems are "worn out" through normal use, just as they would be in our own homes.

4. Q. **Did Proposition 2-1/2 contribute to this situation?**
   A. Not in an appreciable way. We have continued to do all routine maintenance and "break down" maintenance. We did reduce the "replacement maintenance" by about $100,000 per year. So, the total cost of the project might be several thousand dollars less.

5. Q. **What will happen if we do nothing?**
   A. The problems will not go away. They will become worse and more expensive. For example, a roof that no longer can be kept tight will expand its leakage area and cause more extensive and expensive damage to the interior.

6. Q. **Are we just discovering these problems now?**
   A. No. There has been a long period of planning and preparation.
   * The 1983 Five-Year Plan developed by the Administration outlined the need for additional elementary space and upgrading of the buildings.
   * The Administration and School Committee have briefed the Town continuously since 1983 relative to this matter, in

Annual Reports, Newspapers and Newsletters, and at Town Meeting.

* School Committee directed Superintendent to conduct major Facilities Study in 1985.
* Superintendent reported Facilities Study to School Committee in 1987.
* School Committee appointed Building Advisory Committee in 1988.
* Warrant article approved by 1988 Spring Town Meeting for Architectural Planning.
* Bond Issue Vote scheduled for 1989 Town Meeting Election and Annual Town Meeting.
* Construction should begin by 1989/90.

7. Q. **Is the timing correct?**
   A. Yes. We are approaching a crisis situation, more space is necessary and the upgrading work must be done. We have waited a few extra years so that the Town Library could be rebuilt and the Road Reconstruction Program begun. We can wait no longer.

8. Q. **How much will the project cost?**
   A. The school project will cost: $12,806,000.
   The Town Building project will cost: $992,000.

9. Q. **How will this be financed?**
   A. By a bond issue, similar to a home mortgage. The school project will be a 20-year bond issue. The Town Building bond will be a 10-year issue.

10. Q. **Is State Aid available?**
    A. Under the current regulations of the State's School Building Assistance Bureau, Wayland qualifies for a 61% state reimbursement on the principal and interest payments. This means that the Town would pay for 39% of the total cost. The Town Building will not qualify for State reimbursement.

11. Q. **Do we currently have other school debts?**
    A. The last school bond will be retired by the time this project begins, so we will be debt-free by then.

12. Q. **What is necessary to approve the Project locally?**
    A. We will need:
    * 1) a positive debt exclusion vote on Question 3 on the Annual Town Election ballot (simple majority).
    * 2) a positive vote (two-thirds) at Town Meeting to issue the Bond for the project.

13. Q. **What is a "Debt Exclusion"?**

A. A debt exclusion is an authorization from the voters of the Town of Wayland to exclude the principal and interest payments on a bond issue from the Proposition 2-1/2% cap.

14. Q. **What is the connection between Debt Exclusion approval and passage of a bond issue?**

A. Before a bond issue can be brought to Town Meeting for approval, the Town must have the means of paying the debt incurred by the bonds. If this debt is not excluded from the 2-1/2% cap, than we could not go forward with a bond issue because we would not have the money to pay for it.

15. Q. **Why is this project absolutely necessary?**

A. Loker must be reopened. Elementary enrollment is growing. Both elementary schools are overcrowded now. In addition, the Town's assets should be safeguarded.

* Our facilities are in a disgraceful condition for a school system with a nationwide reputation for excellence. We are one of the outstanding, high-performing systems in this Commonwealth, yet, we have depressing working conditions for our excellent staff and superb student body. These conditions do not lend themselves to prolonged positive morale.
* The schools are the Town's largest physical plant. Replacement cost of the school buildings is estimated conservatively at $75,000,000 (1987 cost basis). Estimate to retrofit/upgrade the current school buildings is $12,806,000.
* A 16% investment to carry $75,000,000 in physical assets into the 21st century is good business.

16. Q. **How long will the improvements benefit the town?**

A. We estimate that this work should secure the school buildings for 20-25 years or more.

17. Q. **What will happen if the project is voted down?**

A. Just as with the roads, the buildings will not improve by themselves. We will have to bring the project back for a revote.

APPENDIX A

COST SUMMARY

	SCHOOLS	TOWN BUILDING	TOTAL
CONSTRUCTION COST	$10,333,000	$665,000	$10,998,000
FEES	$690,000	$59,000	$749,000
EXPENSES	$18,000	$3,000	$21,000
FURNISHINGS	$300,000	$20,000	$320,000
ASBESTOS	$1,000,000	$200,000	$1,200,000
CLERK OF WORKS	$65,000	$15,000	$80,000
CONTINGENCY	$400,000	$30,000	$430,000
TOTAL	$12,806,000	$992,000	$13,798,000

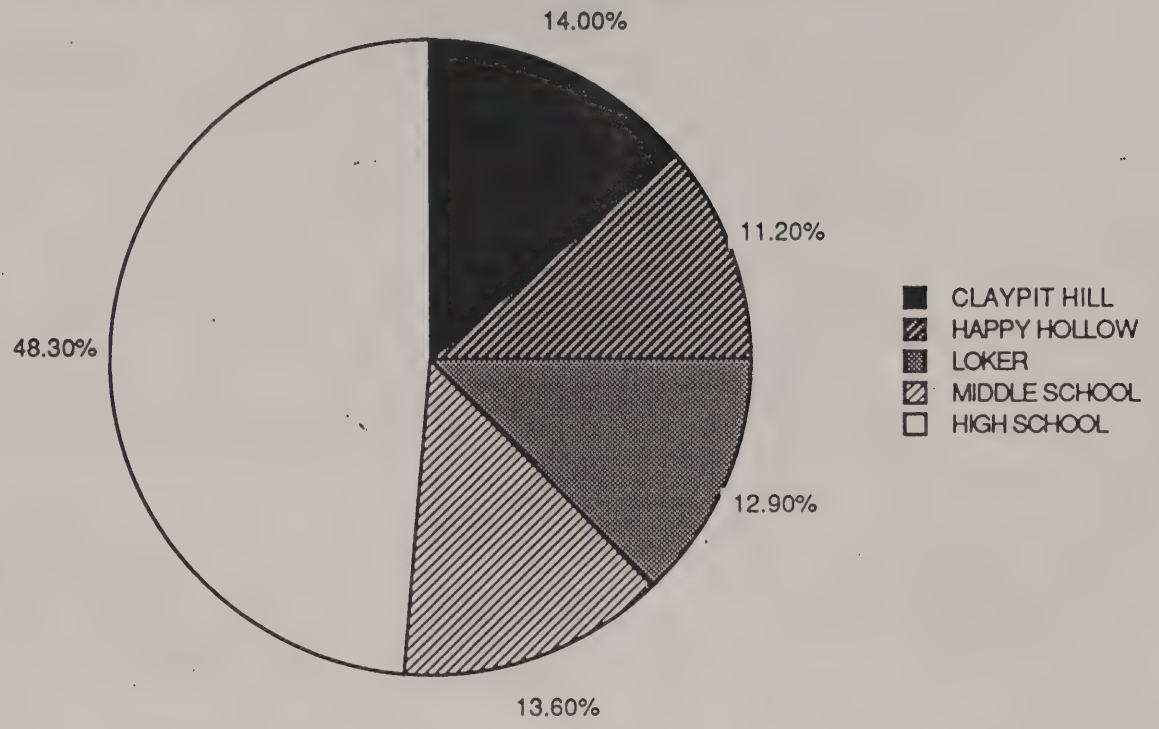
APPENDIX B

CONSTRUCTION COST DETAIL

SPECIFICATION DIVISIONS	CLAYPIT HILL	HAPPY HOLLOW	LOKER SCHOOL	MIDDLE SCHOOL	HIGH SCHOOL	TOWN BUILDING	GRAND TOTAL
DIVISION 1 - GENERAL CONDITIONS	$78,000	$67,000	$82,000	$85,000	$302,000	$39,000	$653,000
DIVISION 2 - SITE WORK	$37,000	$22,000	$28,000	$137,000	$580,000	$55,000	$859,000
DIVISION 3 - CONCRETE	$4,000	$4,000	$7,000	$3,000	$87,000	$6,000	$111,000
DIVISION 4 - MASONRY	$44,000	$100,000	$24,000	$18,000	$162,000	$18,000	$366,000
DIVISION 5 - METALS	$8,000	$10,000	$8,000	$18,000	$47,000	$8,000	$99,000
DIVISION 6 - CARPENTRY	$36,000	$13,000	$36,000	$92,000	$81,000	$60,000	$318,000
DIVISION 7 - ROOFING	$218,000	$195,000	$273,000	$262,000	$419,000	$56,000	$1,423,000
DIVISION 8 - DOORS & WINDOWS	$33,000	$50,000	$44,000	$56,000	$185,000	$35,000	$403,000
DIVISION 9 - FINISHES	$232,000	$167,000	$189,000	$245,000	$626,000	$110,000	$1,569,000
DIVISION 10 - SPECIALTIES	$12,000	$17,000	$16,000	$47,000	$207,000		$299,000
DIVISION 15A - PLUMBING	$61,000	$61,000	$52,000	$70,000	$297,000	$26,000	$567,000
DIVISION 15B - H.V.A.C.	$396,000	$294,000	$311,000	$203,000	$1,106,000	$148,000	$2,458,000
DIVISION 15C - SPRINKLER					$20,000	$15,000	$35,000
DIVISION 16 - ELECTRICAL	$202,000	$89,000	$170,000	$78,000	$547,000	$45,000	$1,131,000
G.C. OVERHEAD & PROFIT	$84,000	$72,000	$88,000	$92,000	$327,000	$44,000	$707,000
TOTAL CONSTRUCTION COSTS	$1,445,000	$1,161,000	$1,328,000	$1,406,000	$4,993,000	$665,000	$10,998,000

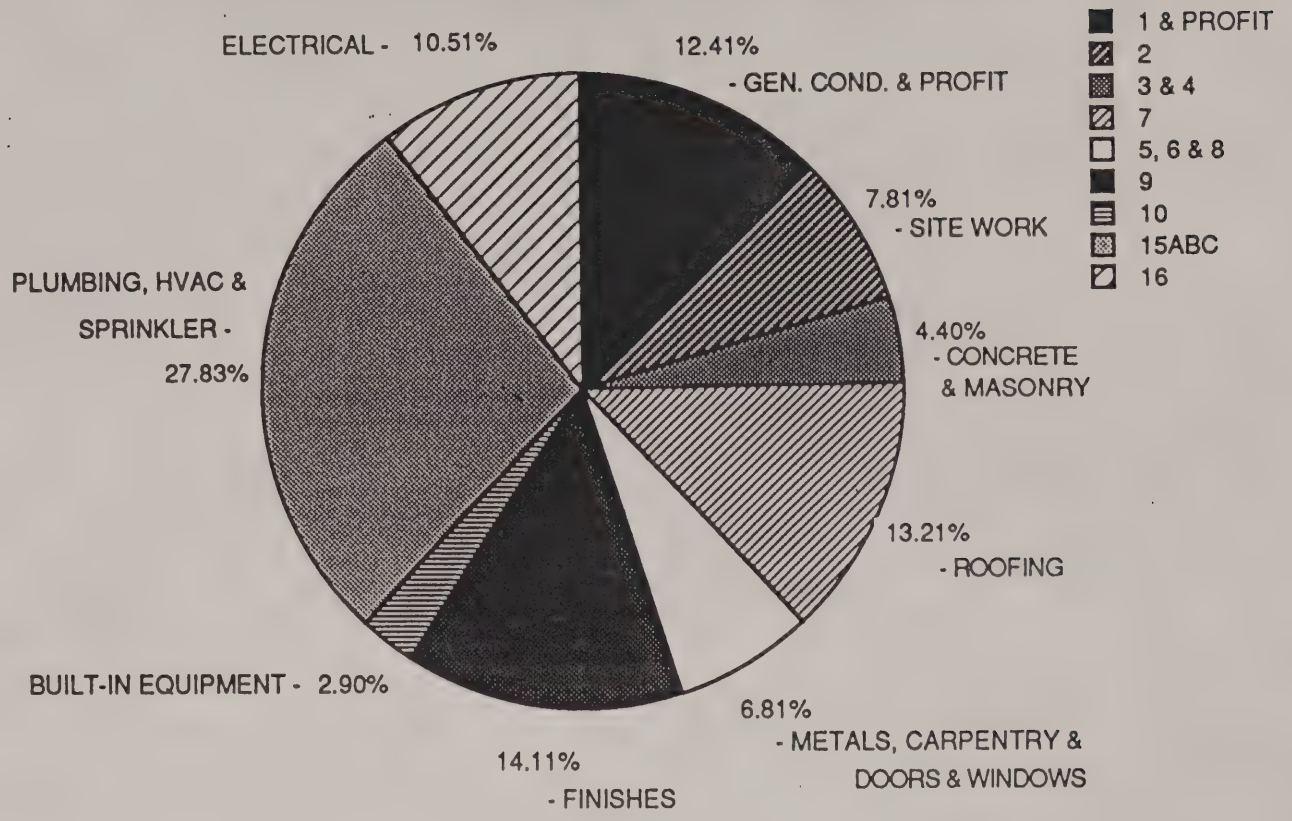
APPENDIX C

CONSTRUCTION COST BY SCHOOL



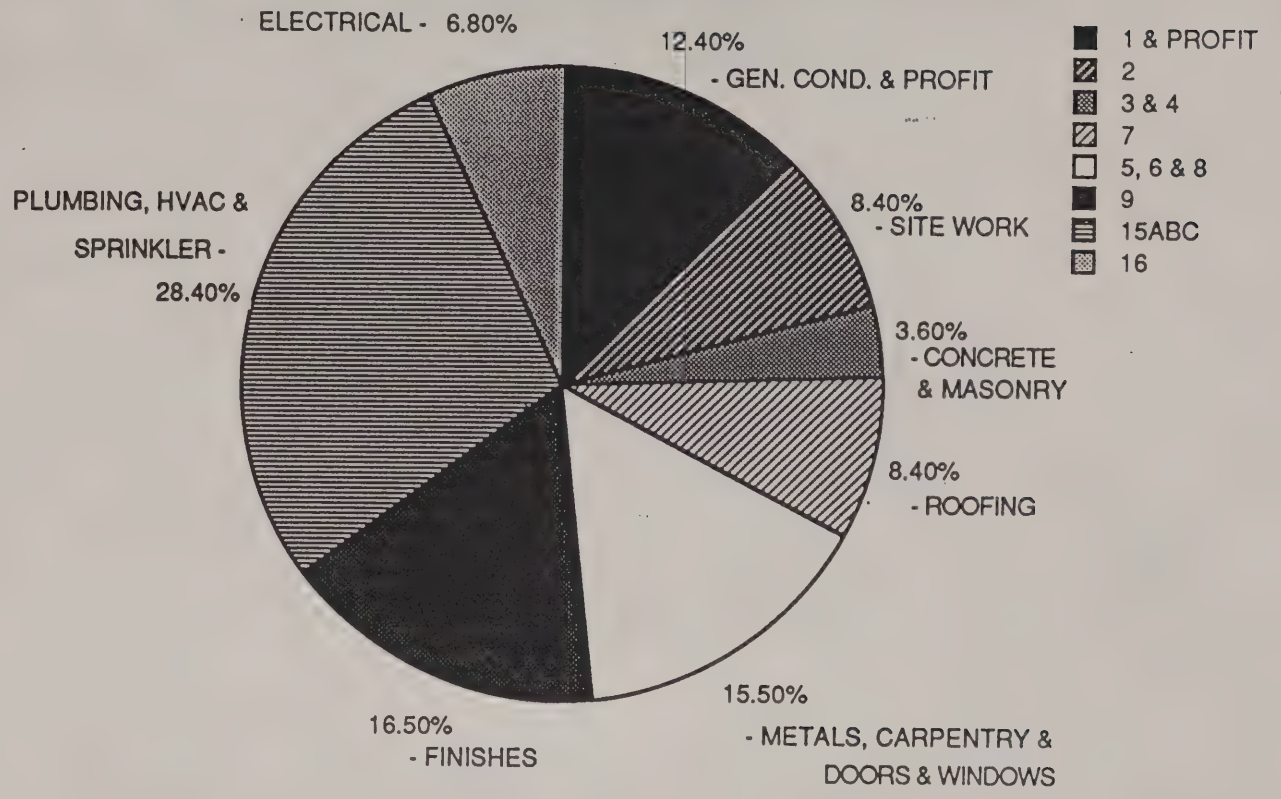
APPENDIX D

CONSTRUCTION COST BY DIVISION



APPENDIX E

TOWN BUILDING COST BY DIVISION



DEBT SERVICE ON SCHOOLS

TOTAL PROJECT COST	$12,806,000	TOTAL TOWN ASSESSMENT	$1,295,044,137
STATE REIMBURSEMENT (61%)	$7,811,660	AVERAGE HOME ASSESSMENT	$282,000
NET COST TO TOWN (39%)	$4,994,340	TAX RATE	$11.79
TERM (YEARS)	20	AVERAGE TAX BILL	$3,325
RATE	7.0%		

YEAR OF PAYMENT	PRINCIPAL PAYMENT	INTEREST PAYMENT	TOTAL DEBT SERVICE	TAX IMPACT $/THOUSAND	TAX IMPACT %	TAX INCREASE ON AVERAGE HOME
1	$249,717	$349,604	$599,321	$0.46	3.9%	$130.50
2	$249,717	$332,124	$581,841	$0.45	3.8%	$126.70
3	$249,717	$314,643	$564,360	$0.44	3.7%	$122.89
4	$249,717	$297,163	$546,880	$0.42	3.6%	$119.08
5	$249,717	$279,683	$529,400	$0.41	3.5%	$115.28
6	$249,717	$262,203	$511,920	$0.40	3.4%	$111.47
7	$249,717	$244,723	$494,440	$0.38	3.2%	$107.67
8	$249,717	$227,242	$476,959	$0.37	3.1%	$103.86
9	$249,717	$209,762	$459,479	$0.35	3.0%	$100.05
10	$249,717	$192,282	$441,999	$0.34	2.9%	$96.25
11	$249,717	$174,802	$424,519	$0.33	2.8%	$92.44
12	$249,717	$157,322	$407,039	$0.31	2.7%	$88.63
13	$249,717	$139,842	$389,559	$0.30	2.6%	$84.83
14	$249,717	$122,361	$372,078	$0.29	2.4%	$81.02
15	$249,717	$104,881	$354,598	$0.27	2.3%	$77.21
16	$249,717	$87,401	$337,118	$0.26	2.2%	$73.41
17	$249,717	$69,921	$319,638	$0.25	2.1%	$69.60
18	$249,717	$52,441	$302,158	$0.23	2.0%	$65.80
19	$249,717	$34,960	$284,677	$0.22	1.9%	$61.99
20	$249,717	$17,480	$267,197	$0.21	1.7%	$58.18
	$4,994,340	$3,670,840	$8,665,180	$0.33	2.8%	$94.34
	TOTAL	TOTAL	TOTAL	AVERAGE	AVERAGE	AVERAGE

APPENDIX G DEBT SERVICE ON SCHOOLS (WITHOUT STATE AID)

PROJECT COST	$1,080,000	TOTAL TOWN ASSESSMENT	$1,295,044,137
TERM (YEARS)	10	AVERAGE HOME ASSESSMENT	$282,000
RATE	7.0%	TAX RATE	$11.79
		AVERAGE TAX BILL	$3,324.78

YEAR OF PAYMENT	PRINCIPAL PAYMENT	INTEREST PAYMENT	TOTAL DEBT SERVICE	TAX IMPACT $/THOUSAND	TAX IMPACT %	TAX INCREASE ON AVERAGE HOME
1	$108,000	$75,600	$183,600	$0.14	1.2%	$39.98
2	$108,000	$68,040	$176,040	$0.14	1.2%	$38.33
3	$108,000	$60,480	$168,480	$0.13	1.1%	$36.69
4	$108,000	$52,920	$160,920	$0.12	1.1%	$35.04
5	$108,000	$45,360	$153,360	$0.12	1.0%	$33.39
6	$108,000	$37,800	$145,800	$0.11	1.0%	$31.75
7	$108,000	$30,240	$138,240	$0.11	0.9%	$30.10
8	$108,000	$22,680	$130,680	$0.10	0.9%	$28.46
9	$108,000	$15,120	$123,120	$0.10	0.8%	$26.81
10	$108,000	$7,560	$115,560	$0.09	0.8%	$25.16
TOTALS	$1,080,000	$415,800	$1,495,800	$0.12	1.0%	$32.57
	TOTAL	TOTAL	TOTAL	AVERAGE	AVERAGE	AVERAGE

APPENDIX H

DEBT SERVICE ON TOWN BUILDING

PROJECT COST	$992,000	TOTAL TOWN ASSESSMENT	$1,295,044,137
TERM (YEARS)	10	AVERAGE HOME ASSESSMENT	$282,000
RATE	7.0%	TAX RATE	$11.79
		AVERAGE TAX BILL	$3,324.78

YEAR OF PAYMENT	PRINCIPAL PAYMENT	INTEREST PAYMENT	TOTAL DEBT SERVICE	TAX IMPACT $/THOUSAND	TAX IMPACT %	TAX INCREASE ON AVERAGE HOME
1	$99,200	$69,440	$168,640	$0.13	1.1%	$36.72
2	$99,200	$62,496	$161,696	$0.12	1.1%	$35.21
3	$99,200	$55,552	$154,752	$0.12	1.0%	$33.70
4	$99,200	$48,608	$147,808	$0.11	1.0%	$32.19
5	$99,200	$41,664	$140,864	$0.11	0.9%	$30.67
6	$99,200	$34,720	$133,920	$0.10	0.9%	$29.16
7	$99,200	$27,776	$126,976	$0.10	0.8%	$27.65
8	$99,200	$20,832	$120,032	$0.09	0.8%	$26.14
9	$99,200	$13,888	$113,088	$0.09	0.7%	$24.63
10	$99,200	$6,944	$106,144	$0.08	0.7%	$23.11
TOTALS	$992,000	$381,920	$1,373,920	$0.11	0.9%	$29.92
	TOTAL	TOTAL	TOTAL	AVERAGE	AVERAGE	AVERAGE

APPENDIX H

DEBT SERVICE ON TOWN BUILDING

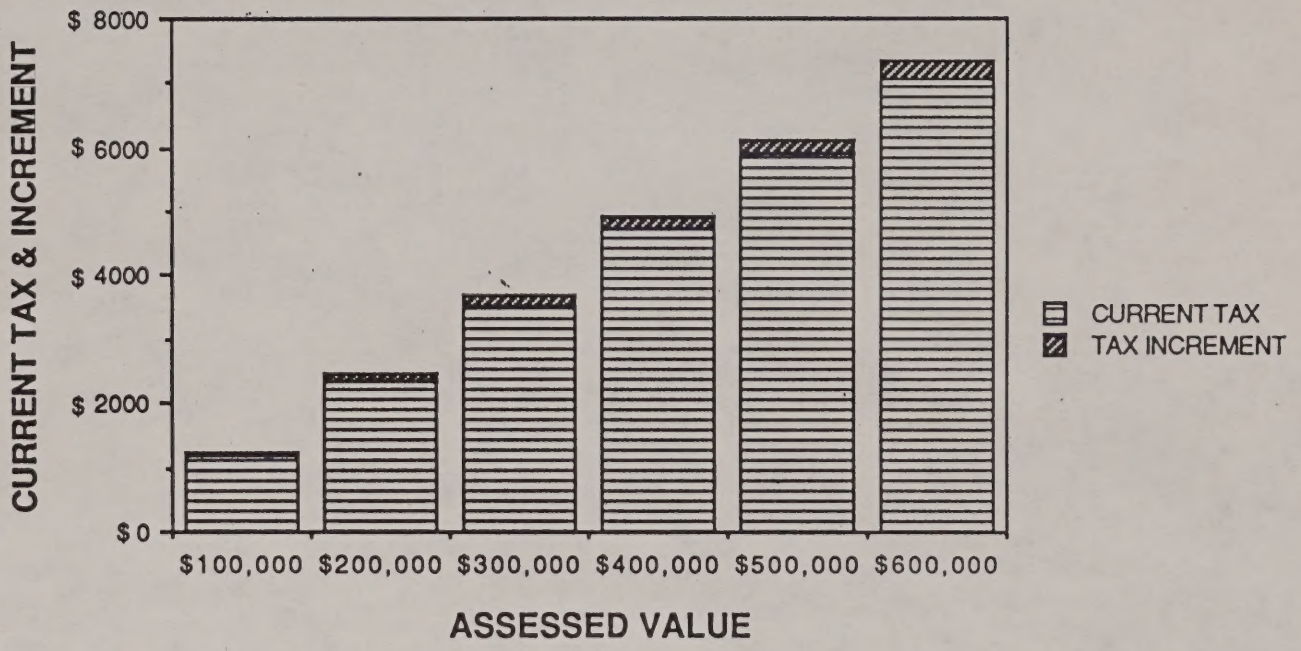
PROJECT COST $952,000
TERM (YEARS) 10
RATE 7.0%

TOTAL TOWN ASSESSMENT $1,285,044,127
AVERAGE HOME ASSESSMENT $282,000
TAX RATE $11.75
AVERAGE TAX BILL $3,324.75

YEAR OF PAYMENT	PRINCIPAL PAYMENT	INTEREST PAYMENT	TOTAL DEBT SERVICE	TAX IMPACT $/THOUSAND	TAX INCREASE ON AVERAGE #	TAX INCREASE ON AVERAGE HOME
1	$95,200	$85,440	$180,640	$0.13	1.1%	$36.72
2	$95,200	$82,458	$177,658	$0.12	1.1%	$35.21
3	$95,200	$79,476	$174,676	$0.12	1.0%	$34.70
4	$95,200	$76,494	$171,694	$0.12	1.0%	$34.19
5	$95,200	$73,512	$168,712	$0.12	1.0%	$33.68
6	$95,200	$70,530	$165,730	$0.12	1.0%	$33.17
7	$95,200	$67,548	$162,748	$0.12	1.0%	$32.66
8	$95,200	$64,566	$159,766	$0.11	0.9%	$32.15
9	$95,200	$61,584	$156,784	$0.11	0.9%	$31.64
10	$95,200	$58,602	$153,802	$0.11	0.9%	$31.13
TOTALS	$952,000	$719,760	$1,671,760	$0.12	1.0%	$33.97

TOTAL	TOTAL	AVERAGE	AVERAGE
$952,000	$719,760	$0.12	$33.97

TAX IMPACT

CURRENT TAX & INCREMENT DUE TO SCHOOL RENOVATIONS

$12,806,000